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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 01-661-A)

In re Application of:

Chad A. Mirkin, et al.

Serial No.: 10/034,451

Filed: December 28, 2001

For: NON-ALLOYING CORE SHELL NANOPARTICLES

Examiner: TBA

Art Unit: 1645

Confirmation No. 9371

Commissioner for Patents and Trademarks
Washington, D.C. 20231

SIXTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

In order to comply with discretionary regulations 37 CFR §§1.97 and 1.98, attached hereto is Form PTO-1449, copies[1] of the documents listed thereon. These documents contain information which the Examiner may consider to be important in deciding whether to allow the present application to issue as a patent.

1. Yguerabide, et al., U.S. Patent No. 6,214,560 issued 04/10/01

2. Alivisatos, A. P., et al., "Organization of 'nanocrystal molecules' using DNA," *Nature,* Volume 382, p. 609-611, (1996)

[1]To the extent that a document is listed and no copy of same is attached, then such document is not at the present time available to the undersigned or is available in the file of a parent application. If a listed document is not in the English language and an English translation is readily available, such translation is also attached; if translation is not attached it is not readily available to the undersigned. If a foreign language patent document is cited, and an English language equivalent is known to the undersigned, then such equivalent patent is also cited on the attached form along with the corresponding foreign language patent and a connecting arrow indicated therebetween; if no such English language equivalent is cited, then none is known to undersigned.

3. Chan, W. C. W., et al., "Quantum Dot Bioconjugates for Ultrasensitive Nonisotopic Detection," *Science,* Volume 281, p. 2016-2018, (1998)

4. He, L., et al., "Colloidal Au-Enhanced Surface Plasmon Resonance for Ultrasensitive Detection of DNA Hybridization," *Journal of the American Chemical Society*, Volume 122, p. 9071-9077, (2000)

5. Link, S., "Alloy Formation of Gold-Silver Nanoparticles and the Dependence of the Plasmon Absorption on Their Composition," *Journal of Physical Chemistry B*, , *103*, 3529-3533, (1999)

6. Mann, S., et al., "Biologically Programmed Nanoparticle Assembly," *Advanced Materials.*, Volume 12, p. 147-150, (2000)

7. Martin, B. R., et al., "Orthogonal Self-Assembly on Colloidal Gold-Platinum Nanorods," *Advanced Materials*, Volume 11, p. 1021-1025, 1999.

8. Mattoussi, H., et al., "Self-assembly of CdSe-ZnS quantum dot bioconjugates using an engineered recombinant protein," *Journal of the American Chemical Society*, Volume 122, p. 12142-12150, 2000

9. Mitchell, G. P., et al., "Programmed assembly of DNA functionalized quantum data," *Journal of the American Chemical Society*, Volume 121, p. 8122-8123, 1999

10. Mulvaney, P., et al., "Electrochemistry of Multilayer Colloids: Preparation and Absorption Spectrum of Gold-Coated Silver Particles," *Journal of Physical Chemistry*, , Volume 97, p. 7061-7064, 1993

11. Niemeyer, C. M., et al., "Covalent DNA – streptavidin conjugates as building blocks for novel biometallic nanostructures," *Angewandte Chemie International Edition in English*, , Volume 37, p. 2265-2268, 2000

12. Pathak, S., et al., "Hydroxylated quantum dots as luminescent probes for in situ hybridization," *Journal of the American Chemical Society*, Volume 123, p. 4103-4104, 2001

13. Rivas, L., et al., "Mixed Silver/Gold Colloids: A Study of Their Formation, Morphology and Surface-enhanced Raman Activity," *Langmuir*, Volume 16, p. 9722-9728, 2000

14. Schrock. E., et al., "Multicolor spectral karyotyping of human chromosomes," *Science*, , Volume 273, p. 494-497, 1996

15. Taton, T. A., "Scanometric DNA array detection with nanoparticle probes," *Science*, Volume 289, p. 1757-1760, 1999

16. Taton, T. A., "Two-color Labeling of Oligonucleotide Arrays Via Size-Selective Scattering of Nanoparticle Probes," *Journal of the American Chemical Society*, Volume 123, p. 5164-5165, 2001

17. Ung, T., et al., "Controlled method for silica coating of silver colloids: influence of coating on the rate of chemical reactions," *Langmuir*, Volume 14, p. 3740-3748, 1998

In accordance with MPEP Sections 609 and 707.05(b), it is requested that each document cited (including any cited in applicant's specification which is not repeated on the attached Form PTO-1449) be given thorough consideration and that it be cited of record in the prosecution history of the present application by initialing on Form PTO-1449. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection, or otherwise does not consider it to be prior art for any reason, or even if the Examiner does not believe that the guidelines for citation have been fully complied with. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

The present Disclosure Statement is being submitted in compliance with 37 CFR 1.56 insofar as an Examiner might consider any of the cited documents important in deciding whether to allow the application to issue as a patent, but the citation of each document is not to be construed as an admission that such document is necessarily relevant or prior art. No representation is intended that the cited documents represent the results of a complete search, and it is anticipated that the

Examiner, in the normal course of examination, will make an independent search and will determine the best prior art consistent with 37 CFR 1.104(a) and 1.106(b) and, in the course of each search, will review for relevance every document cited on the attached form even if not initialed.

Early and favorable consideration is earnestly solicited.

Respectfully submitted,

Dated: 7/29/02

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